

**COMMERCIAL SOUND  
PRODUCTS**

**ALTEC**







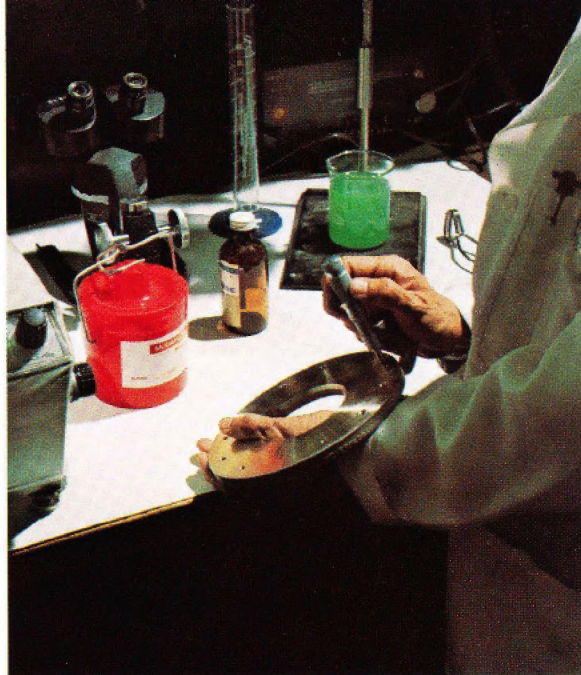
# Introduction

*....Come to me with a problem, and together we will solve it; if not enough is known, upon that which is known we shall build to find the answers....*  
Aristotle

The extension of the state of the audio engineering art is a way of life at Altec. From the pioneering days of motion picture sound reproduction to the development of equipment and methodology for harnessing the problems of room acoustics to tomorrow's breakthrough in electro-acoustic technology—one theme underscores the Altec approach: *Capability*. The capability to venture into unknown areas, to develop where original research is required, and to consistently produce products which are capable—capable of delivering performance like no others, under the most adverse conditions, dependably for years. *Capability*—a one-word summary of Altec.

What does this capability mean to you? By selecting an Altec system designed and installed by an Altec sound contractor, you will have the strongest possible package of experienced, knowledgeable manpower and reliable, time-proven equipment obtainable. Major recording studios, motion picture theatres, auditoriums, churches, outdoor arenas, stadiums, nightclubs, outdoor high-level voice-warning systems, all depend on Altec capability. More U.S. recording studios use Altec monitors than any other, according to Billboard magazine, and the world's most powerful sound system, according to the 1975 Guinness Book of World Records, is installed at Ontario Motor Speedway—an all-Altec system. A pioneer in "talking picture" sound systems, Altec is still the overwhelming leader in theatre sound today. This is the heritage you will inherit when you choose Altec.

Within this catalog you will find brief descriptions of various Altec products which may be used in your application. Some of the products will appear familiar to you, others will undoubtedly stimulate discussion between you and your Altec sound contractor. He is specially trained by Altec in regular training sessions, where he is brought up to date on the latest developments in electro-acoustic technology and instructed in the uses of new and existing products and techniques. Your Altec sound contractor will prove to be a valuable aid in making the optimal equipment selection for your application. Consult him. Review this catalog. We are confident you will opt for the capable choice—Altec.





# 'Voice of the Theatre' Speaker Systems

Ever been to the movies? Who hasn't, but recall for a minute, have you ever really *listened* to the movies? Try to imagine what it would be like to experience modern cinema without the vivid realism of motion picture theatre sound. Altec sound. From the early pioneering days of monaural optical sound tracks to today's multichannel sound systems, Altec is the unquestionable leader in theatre sound.

There is an Altec 'Voice of the Theatre' speaker system for every size application, from the slim A8 for small theatres of up to 500-seat capacity to multiples of the massive A2 system for 70 mm houses. And 'Voice of the Theatre' systems are used for more than cinema sound. Science theatres, museums, schools, churches, amusement parks, all use 'Voice of the Theatre' systems. Wherever high-level, high-accuracy sound reproduction is required in a large acoustic environment, the 'Voice of the Theatre' is the logical choice.

## A2

The largest Altec 'Voice of the Theatre' system, the A2 is used in large enclosed environments, often in arrays for multichannel use. Its unprecedented efficiency makes it capable of extremely high sound levels. Various high-frequency horns can be selected to optimally suit the application.

## A4

Similar to the A2, but smaller and with only half as many active components. Ideally suited for

high-level use in enclosed environments of larger dimensions, but where space limitations prevent the use of the A2. The A4X is of the same size and appearance as the A4, but utilizes two compression drivers for increased high-frequency energy. A variety of high-frequency horns are available for both the A4 and A4X.

## A5X

A very popular system for medium-sized theatres, the A5X utilizes the same active components as the A2 and A4, but with only one bass driver and one high-frequency driver. Several different high-frequency horns are also available for this model.

## A7-8, A7-500-8

For smaller theatres, or where space is at a premium for multitrack systems, the A7 is the choice. The A7-500-8 features improved high-frequency projection over the A7-8, but both are less sensitive and capable of slightly less maximum acoustic output than the A5X. Sectoral horns only are available on the A7's.

## A8

The A8 is a very slim unit designed for use where space is extremely limited. Sensitivity, maximum acoustic output, and low-frequency response are diminished as compared to the A7's and A5X. The A8, however, maintains the 'Voice of the Theatre' standard of performance when used in smaller environments.

	Amplifier Power (watts)	Pressure Sensitivity* (db SPL)	Distribution Pattern	LF Drivers	HF Drivers	HF Horn	Throat	Network	LF Cabinet	Dimensions	Weight
A2	100	108	60°V x 105°H 40°V x 100°H	(4) 515B	(2) 288-16G	1505B or 1005B	(1) 30172 (1) 30170	N500F (1) 15067	(1) 210 (1) 210A	108½"H x 113"W x 39½"D 276cmH x 287cmW x 100cmD 102½"H x 113"W x 39½"D 260cmH x 287cmW x 100cmD	1263 lbs 572.9 kg 1250 lbs 567.0 kg
A4	60	107	60°V x 105°H 40°V x 100°H 40°V x 80°H	(2) 515B	(1) 288-16G	1505B or 1005B or 805B	(1) 30166 (1) 30210 (1) 30162	N500F (1) 15067	(1) 210	108½"H x 80½"W x 39½"D 276cmH x 205cmW x 100cmD 102½"H x 80½"W x 39½"D 260cmH x 205cmW x 100cmD 102½"H x 80½"W x 39½"D 260cmH x 205cmW x 100cmD	763 lbs 346.1 kg 750 lbs 340.2 kg 745 lbs 337.9 kg
A4X	100	107	60°V x 105°H 40°V x 100°H	(2) 515B	(2) 288-16G	1505B or 1005B	(1) 30172 (1) 30170	N500F (2) 15067	(1) 210	108½"H x 80½"W x 39½"D 276cmH x 205cmW x 100cmD 102½"H x 80½"W x 39½"D 260cmH x 205cmW x 100cmD	788 lbs 357.4 kg 755 lbs 342.5 kg
A5X	60	104	60°V x 105°H 40°V x 100°H 40°V x 80°H	(1) 515B	(1) 288-16G	1505B or 1005B or 805B	(1) 30166 (1) 30210 (1) 30162	N500F	(1) 828B	64"H x 30½"W x 30"D 163cmH x 78cmW x 76cmD 59"H x 30"W x 27"D 150cmH x 76cmW x 69cmD 59"H x 30"W x 27"D 150cmH x 76cmW x 69cmD	293 lbs 132.9 kg 280 lbs 127.0 kg 275 lbs 124.7 kg
A7-8	50	101	40°V x 90°H	(1) 416-8B	(1) 806-8B	811B	None	N801-8A	(1) 828B	52½"H x 30"W x 24"D 133cmH x 76cmW x 61cmD	135 lbs 61.4 kg
A7-500-8	50	101	40°V x 90°H	(1) 416-8B	(1) 802-8E	511B	None	N501-8A	(1) 828B	54½"H x 30"W x 24"D 138cmH x 76cmW x 61cmD	142 lbs 64.4 kg
A8	50	97	60°V x 90°H	(1) 416A	(1) 806A	32B	None	N800E	39624	42"H x 30"W x 12"D 107cmH x 76cmW x 31cmD	112 lbs 50.8 kg

\*Measured at 4' on axis with 1 watt input of pink noise, band-limited from 500-3000 Hz. NOTE: A2, A4 and A5 systems are shipped as components.





A5X

A2

A8

A7-500-8

A4

A7-8



# Studio Monitors

With today's recording processes, as much creativity goes on after the musicians leave the studio as while they were there. Often what appears on record to be a large, cohesive musical group, is actually a composite of several different tracks recorded with a few (sometimes only one) musicians in the studio at a time. The multiple tracks are then mixed down, balanced, and adjusted to produce what is finally heard on the record. During this mix-down process, the engineer is totally dependent upon his playback monitors for a true, flawless reproduction of the original track, and to determine how his very subtle adjustments affect the sound during mix-down. The playback monitors must be accurate, articulate, totally faithful reproducers.

Altec makes several monitor systems, all of which have a wide variety of applications beyond the recording studio.

## **604-8G/620A**

The 604-8G is the newest in the famous 604 series of duplex monitor loudspeakers. The 604 series has been around for over a quarter of a century and, in that length of time, has developed an enviable reputation as a high-accuracy, high-efficiency playback monitor, while constantly being refined. The 604-8G is the most sophisticated and refined single-frame reproducer we have ever built.

The 620A is a beautiful oiled oak cabinet with cocoa brown knit grille, and is designed specifically for the 604-8G. Together they form a beautiful, accurate, high-efficiency playback monitor system.

## **9849-8A/D**

The 9849 is our space-conserving monitor. Its relatively small size now permits Altec performance where space limitations would have prevented it in the past. The 9849 not only serves as an excellent monitor, but can also be used in multipurpose applications where both playback and reinforcement requirements must be met. This makes it an ideal choice for churches, community centers, and recreation halls. You may choose from either the gray utility cabinet with

black cloth grille (model 9849-8A), or a beautiful oiled oak cabinet, brown knit grille combination (model 9849-8D).

## **9846-8A**

The 9846-8A has earned an excellent reputation as a superb medium-efficiency monitor with exceptional response at the extreme ends of the audio band, something not often accomplished in a medium-sized monitor enclosure. It utilizes a highly compliant 15" bass driver (model 411-8A) in a sealed enclosure for extremely low distortion at very low frequencies, combined with a high-frequency compression driver (model 802-8E) and sectoral horn (model 511B) for the presence and punch that have made Altec monitors famous. The 802-8E driver provides extended high-frequency response beyond 16 kHz.

## **A7-500-8**

The legacy of the A7 is a famous one. Starting life purely as a cinema playback unit, it was soon in demand for use as a studio monitor and home reproducer. Many engineers still swear by the A7, and have made it their standard of comparison for everything audio. Very versatile and efficient, the A7 is ideally suited for use wherever good projection over long distances of wide-response material is required.

## **9844A**

Like the 9849 speaker systems, the 9844A makes an excellent multipurpose system. It can be used wherever a relatively compact utility system is required for monitoring, sound reproduction, or limited sound reinforcement. The 9844A utilizes two 12-inch bass drivers coupled through a precision dividing network to a compression driver and sectoral horn.

## **9845A**

Utilizing 16-ohm versions of the A7-500-8 components, the 9845A possesses many of the same qualities of efficiency, clarity, and definition so characteristic of the "Voice of the Theatre" systems. Its reduced size, as compared to the A7-500-8, makes it preferable in many applications where performance is a requirement and size a limitation.





#### STUDIO MONITORS

	Power Rating* (watts)	Frequency Response	Pressure Sensitivity** (dB SPL)	Nominal Impedance (ohms)	Distribution Pattern	Crossover Frequency	Dimensions	Weight	Finish
604-86/620-A	65	20-20,000 Hz	100	8	40°V x 90°H	1500 Hz	26"W x 40"H x 18"D 66 cmW x 102 cmH x 46 cmD	138 lbs- 62.6 kg	Oiled oak
9844A	60	35-20,000 Hz	99	8	40°V x 90°H	800 Hz	31"W x 24"H x 16"D 79 cmW x 61 cmH x 41 cmD	90 lbs- 40.8 kg	Gray lacquer
9845A	50	30-20,000 Hz	97	16	40°V x 90°H	500 Hz	40"W x 28"H x 24½"D 102 cmW x 71 cmH x 62 cmD	130 lbs- 59.0 kg	Gray lacquer
9846-8A	100	25-20,000 Hz	93	8	40°V x 90°H	500 Hz	26½"W x 31"H x 23¾"D 67 cmW x 79 cmH x 60 cmD	105 lbs- 47.6 kg	Light gray
9849-8A/ 9849-8D	60	40-15,000 Hz	94	8	40°V x 90°H	1500 Hz	20½"W x 24"H x 15¼"D 52 cmW x 61 cmH x 39 cmD	60 lbs- 27.2 kg	9849-8A, Gray lacquer 9849-8D, Oiled oak
A7-500-8	50	45-20,000 Hz	101	8	40°V x 90°H	500 Hz	30"W x 54½"H x 24"D 76 cmW x 107 cmH x 61 cmD	142 lbs- 64.4 kg	Gray lacquer

\*Measured with pink noise band-limited to the frequency response of the system.

\*\*Measured with 1 watt input of pink noise at 4' on axis.





803B

27A

1505B

511A

31A

1003B

203B

511E

805B

1005B

32B

811B

511B

311-60

311-90



# Horns and Throats

As a supplier of a quality line of sound products for commercial use, Altec offers a complete line of multicell, sectoral and paging horns, and throat adaptors. There is an Altec horn and throat for every commercial sound purpose. Your Altec sound contractor will advise you which horn, throat and compression driver is best suited to your particular application.

Multicell horns are made of rugged lightweight material, selected to withstand a variety of weather conditions for outdoor applications. They are ideally suited for public address systems, and other applications where maximum control and penetration of acoustic energy is required. Multicells have excellent directivity characteristics, especially at lower frequencies, and feature extremely precise control over vertical distribution and extremely sharp dispersion pattern limits.

Altec sectoral horns are precision-manufactured from cast aluminum for strength and durability. They are designed for systems where a high degree of horizontal dispersion uniformity and high-frequency energy projection is required. They are most often used in wide-range 2-way systems for demanding music reproduction or sound reinforcement.

The 31A and 511A are paging horns, often used with a compression driver as the only active element in the system. The 32B is used with a high-frequency driver in 2-way music systems, and provides exceptionally broad horizontal distribution of high-frequency energy.



Type	203B	311-60	311-90	803B	805B	1003B	1005B	1505B	32B	511A	511E	31A	511B	811B
	Multicell	Sectoral	Sectoral	Multicell	Multicell	Multicell 2 x 5	Multicell 2 x 5	Multicell 3 x 5	Sectoral	Sectoral	Sectoral	Sectoral	Sectoral	Sectoral
Distribution Pattern	20°V x 40°H	40°V x 60°H	40°V x 90°H	35°V x 70°H	40°V x 80°H	35°V x 90°H	40°V x 100°H	60°V x 105°H	40°V x 90°H	40°V x 90°H	40°V x 90°H	40°V x 120°H	40°V x 90°H	40°V x 90°H
Low-Frequency Limit	300 Hz	300 Hz	300 Hz	300 Hz	500 Hz	300 Hz	500 Hz	500 Hz	800 Hz	500 Hz	500 Hz	300 Hz	500 Hz	800 Hz
Throat Required	None	None	None	30162	30162	*30210 †30170	*30210 †30170	*30166 †30172	None	None	None	27A	None	None
Dimensions Inches	32"W x 17"H x 31"D	19½"W x 10"H x 21"D	29¾"W x 12¾"H x 16½"D	26½"W x 32"H x 16½"D	17½"W x 24½"H x 13"D	25½"W x 38"H x 16½"D	17¼"W x 30"H x 13"D	16¾"W x 30½"H x 18½"D	16"W x 8"H x 8¾"D	23¾"W x 18½"H x 17¼"D	25¾"W x 16¾"H x 17¼"D	23"W x 17"H x 14"D	23½"W x 10¾"H x 16½"D	18½"W x 8¾"H x 13½"D
Metric	81 cm W x 43 cm H x 79 cm D	50 cm W x 25 cm H x 53 cm D	74 cm W x 31 cm H x 42 cm D	67 cm W x 81 cm H x 42 cm D	45 cm W x 62 cm H x 33 cm D	65 cm W x 97 cm H x 41 cm D	44 cm W x 76 cm H x 33 cm D	43 cm W x 78 cm H x 47 cm D	41 cm W x 20 cm H x 22 cm D	59 cm W x 47 cm H x 45 cm D	65 cm W x 42 cm H x 45 cm D	58 cm W x 43 cm H x 36 cm D	60 cm W x 27 cm H x 29 cm D	47 cm W x 22 cm H x 34 cm D
Weight	22 lbs- 10.0 kg	19.5 lbs- 8.8 kg	29 lbs- 13.2 kg	27 lbs- 12.2 kg	17 lbs- 7.7 kg	32 lbs- 14.5 kg	20 lbs- 9.1 kg	22 lbs- 10.0 kg	10 lbs- 4.5 kg	20 lbs- 9.1 kg	20 lbs- 9.1 kg	15 lbs- 6.8 kg	12.25 lbs- 5.6 kg	9 lbs- 4.1 kg

\*For use with one driver †For use with two drivers \*\*Discontinued product

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# Compression and Bass Drivers

Altec compression drivers are high-efficiency devices designed to be used with Altec sectoral, multicell and paging horns in a variety of applications. They are most often used as the high-frequency component in wide-range 2-way systems for music reproduction and sound reinforcement, or as the single active component in paging or public address applications.

## **290-4G**

The 290-4G is a high-power compression driver designed for use with Altec multicellular horns as a wide-band outdoor public address or voice-warning loudspeaker. Its extended rear cap is designed to house an Altec line-matching transformer for 70 or 200-volt line operation, while maintaining an assembly resistant to the corrosive forces of nature.

## **288-8G/16G**

The 288 is the ideal choice for the high-frequency component in a high-level, low distortion, wide-response, 2-way music reproducer. It has established itself as the finest driver obtainable for theatre sound use and music reproduction, and is an excellent choice for a wide variety of reinforcement applications where extended response and maximum efficiency are required.

## **291-16B**

When the requirements are high sensitivity, high power handling, high maximum acoustic output, in a wide-range 2-way system, the 291-16B is the logical choice. When combined with appropriate bass drivers, networks and horns, it forms an outstanding system for public address or musical sound reinforcement.

## **802-8E**

The 802-8E driver is ideal for use in medium-efficiency music reproduction applications where frequency response, low distortion, and reproduction accuracy are paramount. It is designed to be used with Altec 811B or 511B horns, and a variety of networks, biamps, and bass drivers.

## **808-8B**

The 808-8B compression driver serves as an excellent mid-range and high-frequency driver in systems where high power handling is a must. Mounted to a 511B or 811B horn, it will function beautifully in wide-range, high-level, musical sound reinforcement applications.

## **730C**

This is the one you so often see mounted to a 31A or 511A horn on football fields, stadiums,

military installations, air fields, wherever a high degree of intelligibility is required in a high-level public address or voice-warning system. The 730C is highly reliable, and has been used for years in thousands of installations. Its distinctive bullet shape allows for a weather-resistant mounting of a line-matching transformer inside the housing.

## **421-8H**

The 421-8H is a low-frequency loudspeaker designed for use with electronically amplified musical instruments or as the bass driver in 2-way musical sound reinforcement applications. Its high sensitivity and power handling combined with designed-in dependability make it ideal in these applications.

## **411-8A**

For extended low-frequency response with medium efficiency, the 411-8A is an excellent choice. One of its distinct advantages is its ability to produce excellent bass response in sealed cabinets of modest size. It can be combined with Altec high-frequency compression drivers and horns using a 30904 attenuator/equalizer, resulting in an exceptionally wide-range, low distortion, 2-way system.

## **515B**

Where maximum efficiency and acoustic output are a requisite, the 515B should be chosen. The heart of the larger "Voice of the Theatre" systems, the 515B is capable of tremendous bass response at very high levels, when mounted in an Altec low-frequency horn enclosure.

## **416-8B**

Where enclosure size is a limitation, but high efficiency and acoustic output must be maintained, the 416-8B should be used. It is similar to the 515B, except that it is slightly lower in sensitivity and maximum acoustic output, and its voice coil impedance is 8 ohms, as compared to the 515B's 16-ohm coil. It is the bass driver used in the A7 series "Voice of the Theatre" systems.

## **414-8C**

For performance approaching that of a 515 or 416 in a smaller frame size, there is the 414-8C. It has very high sensitivity and maximum acoustic output for a 12" bass driver and, as a 12", can operate in smaller enclosures than its 15" counterparts. The 9849 series of monitors capitalizes on the 414-8C's excellent characteristics to produce outstanding performance in an enclosure of modest dimensions.





#### HIGH-FREQUENCY DRIVERS

	Power Capacity* (watts)			Frequency Response	Pressure Sensitivity** (dB SPL)	Nominal Impedance (ohms)	Diaphragm Material	Voice Coil Diameter	Weight
	1	2	3						
288-8G 288-16G	60	150	15	500-15,000 Hz	109	8 16	Aluminum	2.8" - 7.1 cm	29.25 lbs - 13.3 kg
290-4G			120	300-7000 Hz	106.5	4	Phenolic	2.8" - 7.1 cm	32 lbs - 14.5 kg
291-16B	120	300	50	500-13,000 Hz	108	16	Symbiotik	2.8" - 7.1 cm	28 lbs - 12.7 kg
802-8E	40	100	10	500-20,000 Hz	104	8	Aluminum	1 3/4" - 4.5 cm	7.25 lbs - 3.3 kg
808-8B	100	200	30	500-15,000 Hz	104	8	Symbiotik	1 3/4" - 4.5 cm	7.25 lbs - 3.3 kg
730C			50	300-8000 Hz	105	8	Phenolic	2" - 5.1 cm	5 lbs - 2.3 kg

\*High-frequency driver power capacity is rated three ways for comparison purposes: Column 1 reflects measurement with continuous musical program material, Column 2 with instantaneous peak power capacity, and Column 3 with continuous pink noise (500-20,000 Hz). All power measurements are made with driver mounted to Altec 500 Hz horn.

\*\*Measured at 4' on axis from mouth of Altec 90° sectoral horn with 1 watt input of pink noise, band-limited from 500-3000 Hz

#### BASS DRIVERS

	Power Rating† (watts)	Frequency Response	Pressure Sensitivity # (dB SPL)	Nominal Impedance (ohms)	Diameter	Weight
411-8A	100	20-1000 Hz	93	8	15 3/4" - 38.9 cm	20.5 lbs - 9.3 kg
414-8C	50	30-4000 Hz	94	8	12 1/4" - 31.1 cm	15 lbs - 6.8 kg
416-8B	75	20-1600 Hz	97	8	15 3/4" - 38.9 cm	17.5 lbs - 7.9 kg
421-8H	150	35-8000 Hz	98	8	16" - 40.6 cm	20.7 lbs - 9.4 kg
515B	75	20-1000 Hz	99	16	15 3/4" - 38.9 cm	26 lbs - 11.8 kg

†Measured with pink noise (20-1000 Hz) in recommended enclosure

#Measured at 4' on axis with 1 watt input of pink noise, band-limited from 100-1000 Hz in 5 cu. ft. laboratory enclosure.



# Loudspeakers



## Full-Range Loudspeakers

A broad selection of full-range loudspeakers is available from Altec for virtually every requirement. There are large, studio-quality units such as the 604-8G, slim units for wall mounting, specialized ceiling speakers for high-power distributed systems, and a variety of general-purpose units for background music, low-level paging, noise masking and many other applications.

## Paging Loudspeakers

Altec produces an extensive line of specialized speakers for use in paging systems. They are designed for use under high ambient noise conditions, and afford excellent projection characteristics. The 150B is ideal for general industrial or school applications, or background music and paging systems. Its dual-horn configuration effects good response for music, and provides outstanding carrying and penetration capability

for paging. The 290-4G or 730C, when mounted to appropriate paging horns, offer exceptional performance in high-level public address applications, and are particularly adaptable to outdoor all-weather conditions.

## Transformers

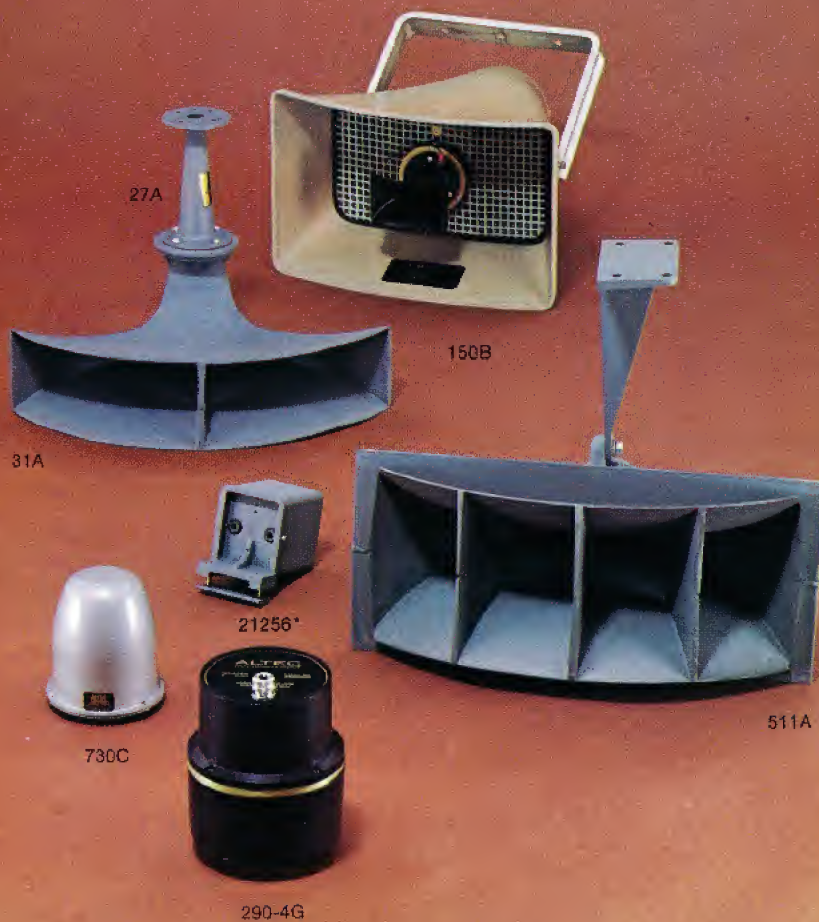
Altec provides a wide variety of line-matching transformers for use in 70 or 200 volt distributed systems. Altec transformers are highly accurate, low-loss devices, and are available in several physical and electrical sizes.

## Networks

Altec networks are precision designed and manufactured to perfectly match Altec bass drivers with Altec high-frequency compression drivers and horns. They are available with either 500 Hz or 800 Hz crossover frequencies and various power ratings.



# Paging Speakers



# Transformers



# Networks



## LOUDSPEAKERS

	403A	405-8G	409-8C	601-8D	604-8G	616-8A	755E
Type	Wide-range cone radiator	Wide-range cone radiator	Two-way coaxial	Two-way coaxial	Two-way coaxial	Two-way coaxial	Wide-range cone radiator
Power Rating (watts)*	12	10	16	40	65	50	20
Frequency Response	70-11,000 Hz	60-15,000 Hz	50-14,000 Hz	30-20,000 Hz	20-20,000 Hz	20-15,000 Hz	40-15,000 Hz
Pressure Sensitivity** (dB SPL)	95	91	94	97	100	100	92
Nominal Impedance (ohms)	8	8	8	8	8	8	8
Nominal Free-Air Cone Resonance	80 Hz	120 Hz	84 Hz	39 Hz	25 Hz	25 Hz	64 Hz
Crossover Frequency			2500 Hz	3000 Hz	1500 Hz	1000 Hz	
Flux Density (gauss)	9000	10,500					9000
HF section			7500	10,000	15,500	14,000	
LF section			8500	10,400	13,000	10,000	
Dimensions							
Diameter	8 5/8" - 21.1 cm	4 3/8" - 11.1 cm	8 1/8" - 20.6 cm	12 1/8" - 30.8 cm	16" - 40.6 cm	15 5/8" - 38.9 cm	8 3/8" - 21.3 cm
Depth	4" - 10.2 cm	2 1/8" - 5.4 cm	3 1/8" - 8.3 cm	5 5/8" - 14.3 cm	11 1/8" - 28.3 cm	8 1/2" - 21.6 cm	2 1/4" - 5.7 cm
Weight	3 lbs - 1.4 kg	2 lbs - 0.9 kg	3 lbs - 1.4 kg	15 lbs - 6.8 kg	34 lbs - 15.4 kg	23 lbs - 10.4 kg	4.5 lbs - 2.0 kg

\*Measured with pink noise, band limited from 20 Hz-20 kHz

\*\*Measured at 4' on axis with 1 watt input of pink noise, band-limited from 500-3000 Hz.

## DIVIDING NETWORKS

Model	Crossover Frequency	Input/Output Impedance (ohms)	Power Rating (watts)	Features
N500F	500 Hz	16	250	Passive dual LC network. 12 dB/octave slope. HF shelving, four 1 dB steps.
N501-8A	500 Hz	8	100	Passive dual LC network. 12 dB/octave slope. Continuously variable HF shelving, 0 to -20 dB.
N800D	800 Hz	16	75	Passive dual LC network. 12 dB/octave slope. HF shelving, four 1 dB steps.
N801-8A	800 Hz	8	100	Passive dual LC network. 12 dB/octave slope. Continuously variable HF shelving, 0 to -20 dB.



# Utility Systems and Enclosures



A variety of utility speaker systems is available from Altec, for virtually any sound reinforcement and sound reproduction requirement. The 9844A and 9845A have both been used extensively in recording studios, amusement parks, concert halls, churches and many other applications. The 849A is an ideal column speaker for small meeting rooms. Its small size and controlled vertical distribution pattern make it a perfect choice for small room reinforcement installations.

Even though Altec offers an extremely diverse selection of speaker systems, variations in architecture and acoustic environments generally preclude the use of standard or even specialized systems. For this reason, Altec makes available its various system components, and your Altec Sound Contractor has been trained to accurately appraise the situation and custom design an Altec system to meet its needs. High-frequency horns and drivers, bass drivers, frequency-dividing networks, and enclosures are available.

Altec low-frequency horn-loaded enclosures effect excellent dispersion pattern control, to perfectly complement high-frequency horns and drivers, and can be used with most Altec 15-inch bass drivers. The 614D and 612C enclosures are widely used to house single 12- and 15-inch loudspeakers in utility applications.

The 814A is a directional low-frequency loudspeaker designed to overcome the problems associated with a too-broad dispersion pattern in reverberant atmospheres. Low-frequency energy is difficult to control, and tends to "fan out" much more than energy in the mid and high frequencies. In reverberant environments, a high ratio of reflected-to-direct energy can occur, resulting in considerable loss in intelligibility. The 814A solves this problem by tightly controlling the horizontal dispersion in the low frequencies, and vertical control is achieved by stacking multiple 814A elements to narrow the distribution pattern.





#### UTILITY SYSTEMS

	Power Rating (watts)	Frequency Response	Pressure Sensitivity* (dB SPL)	Nominal Impedance (ohms)	Distribution Pattern	Crossover Frequency	Dimensions	Weight	Finish
9845A	50	30-20,000 Hz	97	16	40°V x 90°H	500 Hz	40"W x 28"H x 24 1/2"D-102 cmW x 71 cmH x 62 cmD	130 lbs-59.0 kg	Gray lacquer
9844A	60	35-20,000 Hz	99	8	40°V x 90°H	800 Hz	31"W x 24"H x 16"D-79 cmW x 61 cmH x 41 cmD	90 lbs-40.8 kg	Gray lacquer
814A	100	100-1500 Hz	99	8	Cardioid		20"W x 20"H x 12"D-51 cmW x 51 cmH x 31 cmD	40 lbs-18.1 kg	Gray enamel
849A	40	150-15,000 Hz	100	16 or 125	20°V x 120°H		7"W x 28"H x 6 1/4"D-18 cmW x 71 cmH x 16 cmD	18.3 lbs-8.3 kg	Gray enamel

\*Measured with 1 watt input of pink noise at 4' on axis.

#### ENCLOSURES

	Speaker Size	Pressure Sensitivity† (dB SPL)	Dimensions	Weight	Finish
210	15" (2 each)	107.0*	84"H x 80 1/2"W x 39 1/2"D-213 cmH x 204cmW x 100 cmD	451 lbs-205 kg	Gray lacquer
211A	15" (2 each)	106.0*	32 1/2"H x 84"W x 39 1/2"D-83 cmH x 213 cmW x 100 cmD	342 lbs-155 kg	Gray lacquer
612C	15"	99.0**	29 1/2"H x 25 1/2"W x 20"D-75 cmH x 65 cmW x 51 cmD	75 lbs-34 kg	Gray lacquer
614D	12"	94.0†	24"H x 20 1/2"W x 15 1/4"D-61 cmH x 52 cmW x 39 cmD	35 lbs-16 kg	Gray lacquer
815A	15" (2 each)	105.0*	44 1/2"H x 33 1/2"W x 32 1/2"D-113 cmH x 85 cmW x 83 cmD	139 lbs-63 kg	Gray lacquer
816A	15"	101.5**	21 3/4"H x 30"W x 26"D-55 cmH x 76 cmW x 66 cmD	95 lbs-43 kg	Gray lacquer
828B	15"	101.5**	42"H x 30"W x 24"D-107 cmH x 76 cmW x 61 cmD	180 lbs-82 kg	Gray lacquer

\*Mounted with 2 - 515B's.

\*\*Mounted with 1 - 515B.

†Mounted with 1 - 414-8C.

‡1 watt input of pink noise, band-limited from 100-1000 Hz



# Amplifiers

Altec amplifiers are specifically designed for industrial operation, where dependability is of the utmost concern. Sophisticated circuit design and selected top-grade components afford years of uninterrupted, trouble-free service. Most Altec industrial amplifiers are capable of 70.7-volt line operation for maximum efficiency with distributed systems.

## **1593B Power Amplifier**

The 1593B is a 50-watt solid-state power amplifier designed for standard 19" rack mounting, and features a front panel gain adjustment. The 1593B will operate on 120 or 240 volts ac or 28 volts dc, making it ideal for permanent, mobile, or emergency use. Output taps for 4, 8 or 16 ohms and 70.7-volt line operation are included.

## **1594B Power Amplifier**

Like the 1593B, the 1594B is an all-solid-state power amplifier designed for rack mounting. It is capable of delivering 100 watts into 4, 8 or 16 ohms, or 70.7-volt distributed systems, and will operate from 120 or 240 volts ac, or 28 volts dc.

## **1590B/C Power Amplifier**

For high power applications where a transformer-isolated power amplifier is required, the 1590 is ideal. It can deliver 200 watts into 6.25/8 ohms, or 70.7-volt distributed systems (1590B), or 200 watts into 70.7, 100, 141.4 or 200 volt distributed systems (1590C), and will operate on 120 or 240 volts ac, or 28 volts dc.

## **9440A Stereo Power Amplifier**

The ultimate in high power and ultra-low distortion, the 9440A is a magnificent amplifier. It is capable of delivering 200 watts per channel into 8 ohms at less than 0.1% total harmonic distortion, at any frequency from 20 Hz to 20 kHz, or greater than 800 watts monaural into 8 ohms. Designed for rack-mounting, it is ideal for high-power, wide-response, high-accuracy music reproduction or reinforcement systems.

## **1609A Biampifier**

The 1609A is a rack-mounted biampifier composed of two separate power amplifiers and an electronic crossover circuit. It is used to drive wide-band 2-way speaker systems for music reproduction and sound reinforcement. It will deliver 100 watts to the bass driver and 50 watts to the treble driver, with a crossover frequency selectable at 500 Hz, 800 Hz or 1500 Hz with 12 dB per octave high- and low-pass elements. The transformer-coupled outputs maintain rated power levels into 4-, 8- or 16-ohm loads, or 70.7-volt distributed systems.

## **351C Power Amplifier**

The 351C is a compact 50-watt amplifier designed for shelf mounting. Its small size, low distortion and low power consumption make it an ideal choice as a portable paging amplifier.

## **1224A Biampifier**

The 1224A is an electronic crossover/biampifier delivering 30 watts to the high-frequency component and 60 watts to the bass driver. It is a unit of modest size and weight, designed to be installed in the 828B low-frequency horn and other Altec utility speaker enclosures for use with high-accuracy playback and reinforcement systems.

## **1611A Mixer/Power Amplifier**

Although best known for massive installations and sophisticated sound products, Altec provides sound equipment for even the smallest installations. Such is the case with the 1611A. Providing the basic essentials — mixing capabilities for three inputs and master bass and treble controls, it can serve as the complete electronics package for a small sound reinforcement system or background music and paging system. It will deliver 25 watts into a 2- or 8-ohm load, or a 25- or 70.7-volt distributed system, and will either shelf or rack mount.

## **1606A Mixer/Power Amplifier**

Where an increase in output power and flexibility over the 1611A is required, the 1606A is the answer. Its built-in power amplifier delivers 40 watts into 4-, 8- or 16-ohm loads or 70.7-volt distributed systems. Features include four mixable inputs which can be used with various sources through plug-in modules, switchable gain levels (low and high) on each input channel, master gain control, and bass and treble controls. The 1606A mounts in a standard 19" rack.

## **1607A Mixer/Power Amplifier**

Five mixable inputs, adaptable for many uses through plug-in modules, and 75 watts of power into 4-, 8- or 16-ohm loads or 70.7-volt distributed systems, are just a few features of the 1607A. A built-in test tone, master bass and treble controls, a bright/normal switch, front-panel-accessible circuit breaker, and monitor output with volume control complete the package. An ideal unit for medium-sized installations with requirements for up to five inputs. A wide variety of accessories can be ordered to customize the unit to your particular requirements.

## **1608A Mixer/Power Amplifier**

The 1608A can be loaded with accessories to emerge as an amazingly well-equipped single unit. It comes standard with everything the 1607A has, but with twice the output power. The 1608A can be equipped (as can the 1607A) with a variable-range VU meter, variable-threshold compressor, shelf-mounting cover and Acousta-Voicing filters.





POWER AMPLIFIERS						BIAMPLIFIERS		MIXER/POWER AMPLIFIERS			
	351C	1590B	1593B	1594B	9440A	1224A	1609A	1606A	1607A	1608A	1611A
Power Output (watts)	50	200	50	100	200/channel (8 ohms) 400/channel (4 ohms)	60 (LF) (8 ohms) 30 (HF) (8 ohms)	100 (LF) 50 (HF)	40	75	150	25
Gain (each channel)	60 dB	67 dB	61 dB	64 dB	55.7 dB w/15335A (8-ohm load) 58.7 dB w/15335A (4-ohm load) 61.7 dB w/15335A in mono mode (8-ohm load)	52 dB w/15335A (LF) 66 dB w/15095A (LF) 49 dB w/15335A (HF) 63 dB w/15095A (HF)	64 dB (LF) 61 dB (HF)	115 dB 65 dB	119 dB 63 dB	121 dB 71 dB	97 dB 62 dB
Input Sensitivity with 15335A with 15095A	450 mV rms	0.8V rms	0.8V rms	0.8V rms	0.6V rms	0.5V rms 0.5V rms 0.1V rms	0.8V rms	1 mV rms 87 mV rms 160 mV rms	1 mV rms 87 mV rms N/A	1 mV rms 87 mV rms N/A	5.4 mV rms 92 mV rms 340 mV rms
Frequency Response	±1 dB from 20-20,000 Hz	±1 dB from 20-20,000 Hz	±1 dB from 20-20,000 Hz	±1 dB from 20-20,000 Hz	±0.25 dB from 20-20,000 Hz	±1 dB from 20-20,000 Hz	±1 dB from 20-20,000 Hz	±1 dB from 20-20,000 Hz	±1 dB from 20-20,000 Hz	±1 dB from 20-20,000 Hz	±1 dB from 20-20,000 Hz
Crossover Frequency						500, 800 or 1500 Hz with 12 dB/ octave slope	500, 800 or 1500 Hz with 12 dB/octave slope				
Input Impedance (ohms) with 15335A with 15095A	50,000 50,000 2,000	15,000 15,000 600	15,000 15,000 600	15,000 15,000 600	15,000 15,000 600	15,000 15,000 500	15,000 15,000 600	150/250 Up to 47,000 600-15,000 150 or 600	150/250 Up to 50,000 600-15,000 150 or 600	150/250 Up to 50,000 600-15,000 150 or 600	150/250 Up to 47,000
Load Impedance (ohms)	4, 8, 16 and 100	6.25/8 and 25/32	4, 8, 16 and 100	4, 8, 16 and 50	4 (minimum)	4 (minimum)	4, 8, 16 and 50 (LF) 4, 8, 16 and 100 (HF)	4, 8, 16 or 125	4, 8, 16 or 66	4, 8, 16 or 32	2, 8, 25 or 200
Signal-to-Noise Ratio	90 dB	85 dB	85 dB	85 dB	100 dB	90 dB	85 dB	-129 dBm*	-129 dBm*	-129 dBm*	-129 dBm*
Dimensions	5 1/4"H x 9 3/4"W x 9 3/4"D 13.0 cm H x 24.8 cm W x 23.8 cm D	10 1/2"H x 19"W x 8 1/4"D 26.7 cm H x 48.3 cm W x 21.0 cm D	5 1/4"H x 19"W x 7 3/4"D 13.3 cm H x 48.3 cm W x 18.7 cm D	7"H x 19"W x 8 1/2"D 17.8 cm H x 48.3 cm W x 21.6 cm D	7"H x 19"W x 11"D 17.8 cm H x 48.3 cm W x 27.9 cm D	6 1/2"H x 9 3/4"W x 9"D 16.5 cm H x 25.1 cm W x 22.9 cm D	7"H x 19"W x 8 1/2"D 17.8 cm H x 48.3 cm W x 21.6 cm D	5 1/4"H x 19"W x 9"D 13.3 cm H x 48.3 cm W x 17.8 cm D	7"H x 19"W x 9"D 17.8 cm H x 48.3 cm W x 22.9 cm D	8 1/4"H x 19"W x 10 1/2"D 22.2 cm H x 48.3 cm W x 26.7 cm D	3 1/2"H x 17"W x 9 1/2"D 8.9 cm H x 43.2 cm W x 24.1 cm D (Rack mount brackets available)
Weight	16.5 lbs- 7.5 kg	41 lbs- 18.6 kg	23 lbs- 10.4 kg	35.5 lbs- 16.1 kg	56.5 lbs- 25.6 kg	16 lbs- 7.3 kg	37 lbs- 16.8 kg	19 lbs- 8.6 kg	29.3 lbs- 13.3 kg	42 lbs- 19.1 kg	17.75 lbs- 8.1 kg

\*Equivalent input noise measured with 1588C in circuit.



# Mixers and Control Console

## 1592B Mixer/Amplifier

The 1592B is an excellent general-purpose mixer. It features inputs for five signal sources, adaptable by means of plug-in modules, separate master and monitor gain controls, a variable-range VU meter, separate bass and treble controls, test tone, a normal/bright switch and a gain level switch for each microphone input channel.

## 1599A Mixer Extender

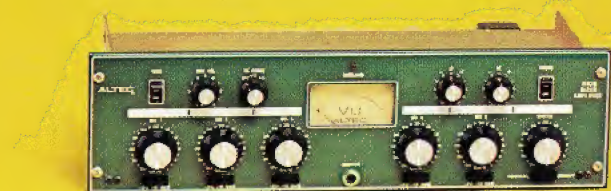
The 1599A is a six-input mixer designed to be used as the only mixer in the system with out-board equalization, or to extend the input capabilities of another mixer such as the 1592B. Each input is adaptable, through plug-in modules, to receive a variety of signal sources; each input is also equipped with a microphone gain level switch.

## 1589B Mixer/Amplifier

The 1589B is a 2-channel mixer designed as a basic mixer, mixer extender, or for use in coupling two other mixers together in one system. Each input has plug-in module capabilities, and a fuse accessible from the front panel.

## 1220AC Control Console

The ALTEC 1220AC Control Console is a portable, solid-state mixer/preamplifier complete with carrying case and detachable legs. It has a self-contained reverb unit, 10 low-impedance, transformer-isolated input channels and one auxiliary input channel for high-level devices. Each of the 10 channels has controls to adjust volume, bass, treble and reverb levels. The out-



1592B



1599A



1589B

### MIXER/PREAMPLIFIERS

	1589B	1592B	1599A
Input Channels	2	5	6
Gain			
With 1588C	77 dB	87 dB	48 dB
With 15095A	28 dB	38 dB	-1 dB
With 15356A	42 dB	54 dB	15 dB
Power Output	+20 dBm	+30 dBm	+6 dBm
Frequency Response	±1 dB from 20-20,000 Hz	±1 dB from 20-20,000 Hz	±1 dB from 20-20,000 Hz
Total Harmonic Distortion	Less than 0.5%	Less than 0.5%	Less than 0.5%
Source Impedance (ohms)			
With 1588C	150/250	150/250	150/250
With 1579C	Up to 50,000	Up to 50,000	Up to 50,000
With 15095A	600-15,000	600-15,000	600-15,000
With 15356A	150 or 600	150 or 600	150 or 600
Load Impedance (ohms)	150 or 600	150 or 600	600
Equivalent Input Noise			
With 1588C	-129 dBm	-129 dBm	-129 dBm
Output Noise Level (below rated output)	85 dB	85 dB	85 dB
Dimensions	1¾"H x 19"W x 4¾"D 4.5 cmH x 48.3 cmW x 12.1 cmD	5¼"H x 19"W x 6½"D 13.3 cmH x 48.3 cmW x 16.5 cmD	3½"H x 19"W x 7"D 8.9 cmH x 48.3 cmW x 17.8 cmD
Weight	4.2 lbs-1.9 kg	10.5 lbs-4.8 kg	7 lbs-3.2 kg





1220AC

put of each channel of 1220AC may be monitored on two selectable channels. Each input is independently monitored by a VU meter prior to entry onto the main (master) channel. The combined signals of reverb and channels 1-11 are fed to a summing amplifier in the main channel. Other special circuits include a line and polarity indicator and switch to prevent shock hazards, an electronic crossover output circuit for bi-amplification, and a peak limiter circuit. Input/output connections, primary power controls and the reverb locking lever are on the rear panel. Modular construction makes operation and service easy.

**Gain—**

86, 78 or 74 dB for channels 1-10 with 150-ohm source

**Input Clipping Level:**

−8 dBm

**Power Output:**

+21 dBm

**Frequency Response:**

±1 dB from 30 Hz to 20 kHz

**Crossover Frequency:**

500 or 800 Hz with ±10 dB shelving balance

**Input Impedance:**

150 ohms nominal (channels 1-10)

5000 ohms nominal (channel 11)

**Load Impedance:**

600 ohms nominal

**Equivalent Input Noise:**

−127.5 dBm

**Tone Control Response:**

±16 dB at 100 Hz (LF) and 10 kHz (HF)

**Limiter Attack:**

10  $\mu$ s to ±1 dB

**Limiter Release:**

63% recovery in 0.5 second (FAST) or 1.5 seconds (SLOW)

**Limiter Distortion:**

Typically less than 1% for 10 dB of compression with +8 dBm output

**Power Requirements:**

120/240V ac, 50/60 Hz, 50 watts —or  
24/28V dc battery, 1A maximum

**Dimensions:**

36"W x 24"D x 11"H  
91.4 cmW x 61.0 cmD x 27.9 cmH

**Weight:**

62 pounds - 28.12 kg



# Special-Purpose Electronics and Accessories

## 1603A SEQR Amplifier Coupler

The 1603A is used to safely couple two power amplifiers in parallel to drive a common load. Should one amplifier fail, the 1603A isolates it from the other amplifier, preventing the failure of the second amplifier and keeping the sound system in operation.

## 1605B NOALA

NOALA means "Noise-Operated Automatic Level Adjustment". What this device does is sense increases and decreases in ambient noise levels through the speaker system, and adjust amplifier gain to compensate for these variations.

## 1612A Limiter Amplifier

In sound systems great variations in input signal level can occur. The 1612A is highly effective at controlling dynamic range, making the average sound level more uniform. The 1612A functions as a limiter, or as a line amplifier and features two inputs, compression/VU meter, a dual range attack/release mode switch and a limit/line balance control to defeat limiting without affecting the average preset output level.

## 8050A Real-Time Audio Analyzer

The 8050A shows the relative amplitude of the audio spectrum in  $\frac{1}{3}$  octave steps from 40 Hz to 16 kHz, with a display capability of 20 dB. It is most often used as an aid in the adjustment of equalizers and filters for acoustic control.

## 9430A Digital Delay System

The 9430A provides excellent quality audio signal delays from 5 to 320 milliseconds, incremented in 5-millisecond steps. Its outstanding 90 dB dynamic range makes signal delay possible where delay tubes, magnetic tape and drum systems, and earlier digital models have been historically unsatisfactory.

## 9860A Active Equalizer

Compensating for irregularities in system frequency response is the job of the 9860A. It features 26 active band-rejection filters, centered at each  $\frac{1}{3}$  octave from 40 Hz to 12.5 kHz, 3-position high- and low-pass filters, and a filter bypass switch.

## 9880A Active Filter

The 9880A provides high- and low-pass filter action to eliminate unwanted noise at the ends of the audio band. High-pass filter frequencies are selectable in  $\frac{1}{3}$  octave steps from 31.5 Hz to 250 Hz; low-pass filter frequencies are selectable in the same way, from 2 kHz to 16 kHz. Separate bypass switches are provided for high- and low-pass functions. A removable front panel protects the filter switches.



1603A



1605B



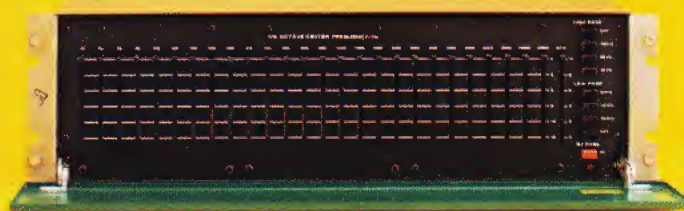
1612A



8050A



9430A



9860A



9880A





1552A



1554A



1597A



1598A



1614A



BLANK PANEL

#### 1552A Meter Panel

A separate 3-range VU meter for monitoring audio levels.

#### 1554A Power Distribution Panel

Provides six switched, two unswitched 3-pin ac outlets for master power control.

#### 1597A Passive Monitor Panel

Provides audible monitoring of line signal from up to five different 70-volt lines. Draws 1 watt from input line.

#### 1598A Amplified Monitor Panel

Provides audible monitoring of line signal from up to five 600-ohm lines. Has built-in 2-watt amplifier. Operates on 110V ac or 28V dc.

#### 1614A Frequency Shifter

Shifts input signal 3 to 6 Hz to aid in feedback control in speech reinforcement systems.

#### Blank Panels

Are available in a variety of heights to fill open areas in standard 19" racks.

#### 1579B / C Equalized Preamplifier

Converts most Altec mixer inputs to accept magnetic phono input. Equalized to meet RIAA standards.



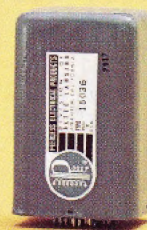
1579B / C



1588C



8080B



15036



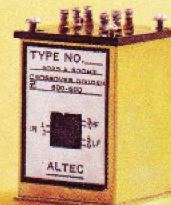
15335A



15095A



15356A



9025-1/-2

#### 1588C Microphone Preamplifier

Converts most Altec mixer inputs to accept low-impedance microphone. Features 129 dBm equivalent input noise and phantom power for condenser microphones.

#### 8080B Pink Noise Generator

Provides random pink noise source for the calibration and adjustment of equalizers and filters, and for use in speech privacy systems.

#### 15036 Repeat Coil

This precision inductor provides isolation and line matching for 150- or 600-ohm line through selectable taps.

#### 15095A Line Transformer

A precision transformer used for input and output impedance matching in 600-ohm systems.

#### 15335A Matching Transformer

A precision-manufactured device used to provide isolation and line matching for 15,000-ohm lines.

#### 15356A Line Matching Transformer

Provides isolation and line matching for 600-ohm lines. Typical of Altec precision inductor construction.

#### 9025-1 / 9025-2 Dividing Networks

Two high-precision passive crossover networks for use before power amplifier stage for biamp operation. Crossover frequencies are 500 Hz (9025-1) or 800 Hz (9025-2).



# Microphones

There is an Altec microphone for every purpose. Spanning the complete range of applications, from microphones used with mobile radios to ultra-sophisticated studio-quality units, Altec has a quality microphone ideally suited to meet the demands of any situation.

Altec makes both cardioid (having a basically hemispherically shaped pickup pattern as measured from above the microphone) and omnidirectional (having a spherical pickup pattern) microphones. Each type of pickup pattern is inherent in both dynamic and condenser type microphones. Dynamic microphones tend to be more universal in their applications, but condensers are best for absolute accuracy.

## Dynamic Cardioid Microphones

**650BL** Built-in windscreen. All-metal case. Ideal for rugged, multi-use applications.

**654A** Built-in windscreen. All-metal, nonglare-finished case. Ideal for rough-service entertainment use.

**656AL** Built-in windscreen. One-piece, nonglare, nickel-finished case. Shock-mounted element.

## Dynamic Omnidirectional Microphones

**655AL** Built-in windscreen. One-piece, nonglare, nickel-finished case. Shock-mounted element.

**677B** Miniature lavalier microphone weighing less than 1 ounce. Nonglare finish. Includes tie clip mounting and lavalier cord.

**686B** Lavalier microphone. Nonglare dark green finish. Includes tie clip mounting and lavalier cord.

**687B** Ideal for stationary announcing and paging applications. On-off switch for microphone and accessory equipment operation.

**668A** Ideal for high-intelligibility voice communication systems. Impact-resistant case. Push-to-talk switch with audio muting feature for accessory equipment operation.

**699A** Special noise-cancelling microphone with amplifier for use in telephone-type handsets. Black finish.

## Condenser Microphones

**M53** Cardioid pickup pattern. Ideal for high-precision applications. Requires 12V to 50V dc phantom power (supplied by 1588C preamplifier). Includes windscreen and holder.

**M54** Omnidirectional version of the M53.

**624A** Omnidirectional lavalier microphone. Uses 1.3-volt mercury battery. Up to 110-hour battery life. On-off switch connector. Supplied with tie/lapel clip.

**626A** Uses 1.35-volt mercury battery. Up to 700-hour battery life. Supplied with both omnidirectional and cardioid cartridges, cable, and slip-on swivel adaptor. On-off switch. Windscreen. Nonglare nickel finish.



650BL



655AL



654A



M53/ M54



656AL

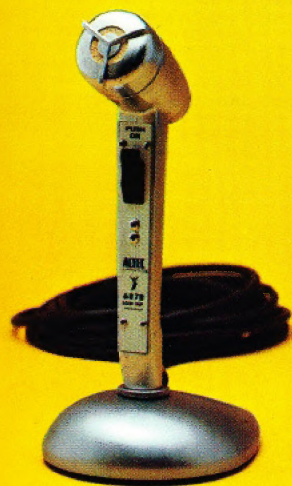


626A



668A





687B



677B



686B



699A



624A



#### MICROPHONE STANDS AND ACCESSORIES

Model	Height	Base	Stem Assembly
UMS-100	35 to 63"	10" Diam. black wrinkle	Bright Chrome
UMS-101	34 to 62"	10" Diam. bright chrome	Bright Chrome
UMS-102	34 to 62"	10" Diam. bright chrome	Bright Chrome
UMS-103	36 to 63"	12" Diam. black wrinkle	Bright Chrome
UDS-100	4" only	6" Diam. black wrinkle	Bright Chrome
UDS-101	8 to 13"	6" Diam. black wrinkle	Bright Chrome

**Model UGN.** Flexible "goose necks" may be used with any mic stand for hard to reach applications. Bright Chrome finish.  
**Model UGN-106:** 6 inches; **Model UGN-113:** 13 inches; **Model UGN-119:** 19 inches.  
**Model UBB-100.** Boom attachment, features a solid machined brass swivel mount. Fits securely on any standard floor stand. Bright Chrome finish.  
**Model UBS-100.** Boom swivel mount used on UBB-100. Available as a replacement, or can be used to mount several mics to one floor stand.

Model	Type	Pickup Pattern	Frequency Response	Output Level**	Finish	Dimensions	Weight
*M53	Condenser	Cardioid	20-20,000 Hz	-40 to -72 dBm (adjustable in -8 dB steps)	Nonreflective Satin Chrome Microplate	3/4" (1.9 cm) dia. x 5 3/4" (14.7 cm) long (cartridge and base)	3.4 oz-96 gm
*M54	Condenser	Omnidirectional	20-15,000 Hz	-40 to -72 dBm (adjustable in -8 dB steps)	Nonreflective Satin Chrome Microplate	3/4" (1.9 cm) dia. x 5 3/4" (14.7 cm) long (cartridge and base)	3.4 oz-96 gm
624A	Electret condenser lavalier	Omnidirectional	70-15,000 Hz	-57 dBm	Brushed Chrome Plate w/Black Trim	3/8" (1.4 cm) dia. x 1 3/4" (4.4 cm) long	0.75 oz-21 gm
626A	Electret condenser	Cardioid or Omnidirectional	50-15,000 Hz	-48 dBm (switch out) -58 dBm (switch in)	Matte Satin Nickel	1 3/4" (4.4 cm) dia. x 8" (20.3 cm) long	8 oz-227 gm
650BL	Dynamic moving coil	Cardioid	50-15,000 Hz	-56 dBm	Satin Chrome Finish	1 3/4" (4.4 cm) dia. x 7 1/4" (18.4 cm) long	8.6 oz-244 gm
654A	Dynamic moving coil	Cardioid	50-15,000 Hz	-56 dBm	Matte Satin Nickel	2" (5.1 cm) dia. x 7 1/4" (18.4 cm) long	8.5 oz-241 gm
655AL	Dynamic moving coil	Omnidirectional	50-15,000 Hz	-56 dBm	Matte Nickel	1 1/2" (3.8 cm) dia. x 6 1/2" (16.5 cm) long	6.75 oz-191 gm
656AL	Dynamic moving coil	Cardioid	60-15,000 Hz	-62 dBm	Matte Nickel	1 1/2" (3.8 cm) dia. x 6 1/2" (16.5 cm) long	6.75 oz-191 gm
668A	Dynamic moving coil, close talking, hand held	Omnidirectional	100-5000 Hz	-60 dBm	Impact-Resistant Plastic	2 1/2" (6.4 cm) H 3 3/8" (9.2 cm) W 2" (5.1 cm) D	4.5 oz-128 gm
677B	Dynamic moving coil, lavalier	Omnidirectional	70-12,000 Hz	-58 dBm	Dark Green Baked Enamel	7/8" (2.2 cm) dia. x 1 3/8" (3.5 cm) long	0.91 oz-26 gm
686B	Dynamic moving coil, lavalier	Omnidirectional	70-20,000 Hz	-55 dBm	Dark Green Baked Enamel	1 1/8" (2.7 cm) dia. x 3 1/2" (8.9 cm) long	3 oz-85 gm
687B	Dynamic moving coil, announce and paging, w/stand	Omnidirectional	50-15,000 Hz	-58 dBm	Satin Chrome	7 1/2" (19.1 cm) high 3" (7.6 cm) deep 1 5/8" (4.1 cm) dia.	16 oz-454 gm
699A	Noise-cancelling dynamic moving coil w/built-in amplifier for G-1 telephone handsets	Omnidirectional	100-5000 Hz	-31 dB; 1 volt at 1 dyne/cm <sup>2</sup>	Mounts in G1 Telephone Handset	2" (5.1 cm) dia. x 1" (2.5 cm) high	1.5 oz-43 gm

Note: All models have a nominal 200-ohm (low) impedance except the M53/M54, which have a 150-ohm impedance.  
 \*The M53/M54 require 12V to 50V dc, 5 mA or less phantom power (can be supplied by 1588C preamplifier).

\*\*Referenced to 10 dynes/cm<sup>2</sup>





**ALTEC**

SOUND PRODUCTS DIVISION

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